EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1876	362/253	USPAT	OR	OFF	2006/09/05 10:48
S2	163440	"356"	USPAT	OR	OFF	2006/09/05 10:48
S3	734	S2 and plasmon$3	USPAT	OR	OFF	2006/09/05 10:49
S4	56	S1 and S2	USPAT	OR	OFF	2006/09/05 11:06
S5	0	S1 and S3	USPAT	OR	OFF	2006/09/05 10:49
S6	29728	S2 and substrate	USPAT	OR	OFF	2006/09/05 10:49
S7	593	S3 and substrate	USPAT	OR	OFF	2006/09/05 10:49
S8	4846	S2 and ridge	USPAT	OR	OFF	2006/09/05 10:49
S9	78	S1 and ridge	USPAT	OR	OFF	2006/09/05 11:05
S10	78	S1 and ridge	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:50
S11	4846	S2 and ridge	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:50
S12	19	S1 and microscope	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:53
S13	0	S2 and microscopre	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:50
S14	10639	S2 and microscope	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:51
S15	259	S14 and plasmon$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:52
S16	595	S2 and substrate and plasmon$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:53
S17	229	S16 and microscope	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:53
S18	40	saeki-tetsuo.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/25 13:47

EAST Search History

S19	733	surface adj plasmons	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:56
S20	679	S19 and metal	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:57
S21	528	S19 and gold	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:57
S22	296	S19 and aluminum	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:57
S23	260	S19 and copper	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:57
S24	257	S21 not S22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:57
S25	285	S21 not S23	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:57
S26	342	S19 and metal adj film	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:58
S27	340	S26 and light	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:58
S28	278	S19 and evanescent	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 10:58
S29	260	S19 and wave$3	USPAT	OR	OFF	2006/09/05 10:59
S30	114	S19 and wave$3 with evanescent	USPAT	OR	OFF	2006/09/05 11:00
S31	0	"2006526643"	USPAT	OR	OFF	2006/09/05 11:00
S32	0	"2006/526643"	USPAT	OR	OFF	2006/09/05 11:00
S33	0	10/526643	USPAT	OR	OFF	2006/09/05 11:01
S34	0	"20060139921"	USPAT	OR	OFF	2006/09/05 11:01
S35	1	"20060139921"	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:01

EAST Search History

S36	78	S1 and ridge	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:09
S37	0	S1 and saeki	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:06
S38	0	S4 and plasmon$3	USPAT	OR	OFF	2006/09/05 11:07
S39	0	S4 and plasmons	USPAT	OR	OFF	2006/09/05 11:07
S40	0	S1 and plasmons	USPAT	OR	OFF	2006/09/05 11:07
S41	0	S1 and plasmons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:07
S42	0	S4 and plasmons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:07
S43	296	S22 and plasmons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:08
S44	338	S27 and plasmons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:11
S45	122	S43 not S44	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:07
S46	295	S44 and gold	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:11
S47	174	S44 and aluminum	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:12
S48	146	S44 and copper	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:12
S49	252	S44 and silver	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:12
S50	74	S44 and photodetector$3	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 11:12
S51	1	"3984189".PN.	USPAT; USOCR	OR	OFF	2006/09/05 11:17
S52	2	("3984189" | "4681451").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/09/05 11:17
S53	71	("4844613").URPN.	USPAT	OR	OFF	2006/09/05 14:57
S54	0	S53 and palsmons	USPAT	OR	OFF	2006/09/05 11:17
S55	25	S53 and plasmons	USPAT	OR	OFF	2006/09/05 11:18

EAST Search History

S56	1	"5822073".PN.	USPAT; USOCR	OR	OFF	2006/09/05 11:42
S57	1	"6570657".PN.	USPAT; USOCR	OR	OFF	2006/09/05 11:42
S58	1	"6466323".PN.	USPAT; USOCR	OR	OFF	2006/09/05 11:43
S59	1	"5991048".PN.	USPAT; USOCR	OR	OFF	2006/09/05 11:43
S60	1	"20010040679".PN.	US-PGPUB	OR	OFF	2006/09/05 12:09
S61	1	"6570657".PN.	USPAT; USOCR	OR	OFF	2006/09/05 12:09
S62	3	S18 and plasmon$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:07
S63	4416994	G01 N 021/27 .ipc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:07
S64	7939	S63 and plasmon$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:08
S65	0	S64 and covergent with light	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:10
S66	62	S64 and convergent with light	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 14:14
S67	50	S66 and gold	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:13
S68	4	S67 and ridge	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:30
S69	2674	356/445	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:30
S70	152	S69 and plasmons	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:32
S71	87	S70 and evanescent	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:30

EAST Search History

S72	305	S69 and evanescent	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:30
S73	0	S72 and substrate with ridge	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:30
S74	163	S72 and substrate	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:31
S75	0	S74 and striped	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:31
S76	16	S69 and striped	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:31
S77	0	S70 and striped	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:32
S78	102	S69 and convergent	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:32
S79	75	S69 and convergent with light	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:33
S80	11	S70 and convergent with light	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:33
S81	2065	S69 not prism	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:34
S82	30	S81 and plasmons	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:45
S83	247	S81 and gold	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:34

EAST Search History

S84	2	S83 and convergent with light	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:34
S85	25	"5,898,503"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:45
S86	29	"5,912,456"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:45
S87	25	"5898503"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 13:45
S88	15	S66 and microscope	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/05 14:14
S89	25	S53 and plasmons	USPAT	OR	OFF	2006/09/05 14:58
S90	0	S36 and striped	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:09
S91	3	S1 and striped	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:10
S92	682	S1 and transparent	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:12
S93	20651	"93" and ridge	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:11
S94	27	S92 and ridge	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:11
S95	0	S92 and photodetect	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:11
S96	4	S92 and photodetect$4	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:11
S97	0	S92 and plasmon$3	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:12

EAST Search History

S98	0	S92 and plasmons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:12
S99	0	S93 and plason$32	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:13
S100	0	S93 and plasons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:13
S101	1	S63 and plasons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:13
S102	647	S63 and plasmons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:14
S103	121	S102 and photodetect$4	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:14
S104	108	S103 and metal	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:14
S105	1	S104 and substrate with ridge	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:14
S106	94	S104 and substrate	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:32
S107	80710	mori.in.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:32
S108	1	S107 and plasmons	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2006/09/05 15:33
S109	999	ovshinsky.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/25 12:51
S110	0	2003/0048744.pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/25 12:51

EAST Search History

S111	58	2003/0048744	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/25 12:51
S112	1	"5875032".pn.	USPAT	OR	OFF	2006/09/25 12:59
S113	40	saeki-tetsuo.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/25 13:47
S114	1	S113 and (ridge)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO	OR	OFF	2006/09/25 13:47

15/9/1
DIALOG(R) File 2:INSPEC
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07400870 INSPEC Abstract Number: A1999-24-7320M-004
Title: Near-field **surface plasmon microscopy** : A numerical study of plasmon excitation, propagation, and edge interaction using a three-dimensional Gaussian beam
Author(s): Baida, F.I.; Van Labeke, D.; Vigoureux, J.-M.
Author Affiliation: Lab. d'Opt. P.M. Duffieux, Inst. des Microtech. de Franche-Comte, France
Journal: Physical Review B (Condensed Matter) vol.60, no.11 p. 7812-15
Publisher: APS through AIP,
Publication Date: 15 Sept. 1999 Country of Publication: USA
CODEN: PRBMDO ISSN: 0163-1829
SICI: 0163-1829(19990915)60:11L.7812:NFSP;1-#
Material Identity Number: P279-1999-038
U.S. Copyright Clearance Center Code: 0163-1829/99/60(11)/7812(4)/$15.00
Document Number: S0163-1829(99)14931-2
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: We present a three-dimensional model of the detection of a **surface plasmon** by a scanning tunneling **optical microscope** and we compare our results with experimental ones. We also present a study of reflection of a **surface plasmon** on the edge of a **metallic groove**. (27 Refs)

11/9/2
DIALOG(R) File 2:INSPEC
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08224780 INSPEC Abstract Number: A2002-09-7320M-016
Title: Negative role of **surface plasmons** in the transmission of **metallic gratings** with very **narrow slits**
Author(s): Qing Cao; Lalanne, P.
Author Affiliation: Inst. d'Opt., CNRS, Orsay, France
Journal: Physical Review Letters vol.88, no.5 p.057403/1-4
Publisher: APS,
Publication Date: 4 Feb. 2002 Country of Publication: USA
CODEN: PRLTAO ISSN: 0031-9007
SICI: 0031-9007(20020204)88:5L.1:NRSP;1-B
Material Identity Number: P096-2002-008
U.S. Copyright Clearance Center Code: 0031-9007/02/88(5)/057403(4)$20.00
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: It is generally admitted that the extraordinary transmission of **metallic grating** with very **narrow slits** is mainly due to the excitation of **surface plasmons** on the upper and lower interfaces of the **grating**. We show that the **surface plasmon** contribution is not the prime effect and that waveguide mode resonance and diffraction are responsible for the extraordinary transmission. Additionally and surprisingly, we reveal that the transmittance of subwavelength metallic **gratings** is always nearly zero for frequencies corresponding to **surface plasmon** excitation. This finding implies that **surface plasmons** play a negative role in the transmission. (16 Refs)
Subfile: A
Descriptors: diffraction **gratings**; light transmission; **optical waveguide** theory; **surface plasmons**
Identifiers: negative role; **surface plasmons**; metallic **gratings** transmission; very narrow **slits**; upper interfaces; lower interfaces; waveguide mode resonance; extraordinary transmission; subwavelength **gratings**
Class Codes: **A7320M** (Collective excitations (surface states)); A4225B (Optical propagation, transmission and absorption); A4280F (Gratings, echelles); **A4280L** (Optical waveguides and couplers); A7865E (Optical properties of metals and metallic alloys (thin films/low-dimensional structures))
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11/9/3
DIALOG(R) File 2:INSPEC
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07595298 INSPEC Abstract Number: A2000-12-4280X-016, B2000-06-4190F-034
Title: **Surface-plasmon** -assisted resonant tunneling of light through a periodically corrugated thin metal film
Author(s): Avrutsky, I.; Zhao, Y.; Kochergin, V.
Author Affiliation: Dept. of Electr. & Comput. Eng., Wayne State Univ., Detroit, MI, USA
Journal: Optics Letters vol.25, no.9 p.595-7
Publisher: Opt. Soc. America,
Publication Date: 1 May 2000 Country of Publication: USA
CODEN: OPLEDP ISSN: 0146-9592
SICI: 0146-9592(20000501)25:9L.595:SPAR;1-S
Material Identity Number: O053-2000-010
U.S. Copyright Clearance Center Code: 0146-9592/2000/090595-03$15.00/0
Language: English Document Type: Journal Paper (JP)
Treatment: New Developments (N); Experimental (X)
Abstract: We present experimental results and a numerical model confirming that **surface plasmons** can resonantly enhance light transmission through a corrugated metal film. A new interpretation in terms of plasmon-assisted light tunneling is given to recent experiments on light penetration through periodic subwavelength holes in a thin **metal** film. We designed a **narrow**-band filter suitable for applications in optical communication by optimizing the film and the **grating** parameters. (13 Refs)
Subfile: A B
Descriptors: diffraction **gratings**; light transmission; metallic thin films; optical films; **optical waveguide** filters; optimisation; resonant tunnelling; **surface plasmons**
Identifiers: **surface-plasmon**-assisted resonant tunneling; light tunnelling; periodically corrugated thin metal film; numerical model; resonantly enhance; light transmission; corrugated metal film; plasmon-assisted light tunneling; light penetration; periodic subwavelength holes; narrow-band filter; optical communication; **grating** parameter optimisation; optical film parameter optimisation
Class Codes: A4280X (Optical coatings); A7320D (Electron states in low-dimensional structures); **A7320M** (Collective excitations (surface states)); A4280F (Gratings, echelles); A7865E (Optical properties of metals and metallic alloys (thin films/low-dimensional structures)); A7360D (Electrical properties of metals and metallic alloys (thin films/low-dimensional structures)); **A4280L** (Optical waveguides and couplers); A4280C (Spectral and other filters); B4190F (Optical coatings and filters); B0260 (Optimisation techniques); **B4130** (Optical waveguides)
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DIALOG(R) File 2:INSPEC
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09921542
Title: **Evanescent** Bessel beam generation via **surface plasmon** resonance excitation by a radially polarized beam
Author(s): Qiwen Zhan
Author Affiliation: Electro-Opt. Graduate Program, Univ. of Dayton, OH, USA
Journal: Optics Letters vol.31, no.11 p.1726-8
Publisher: Opt. Soc. America,
Publication Date: 1 June 2006 Country of Publication: USA
CODEN: OPLEDP ISSN: 0146-9592
SICI: 0146-9592(20060601)31:11L.1726:EBBG;1-7
Material Identity Number: O053-2006-010
U.S. Copyright Clearance Center Code: 0146-9592/06/111726-3/$15.00
Document Number: S0146-9592(06)54811-4
Language: English Document Type: Journal Paper (JP)
Treatment: Practical (P); Theoretical (T)
Abstract: A simple setup for generating evanescent Bessel beams is proposed. When a radially polarized **beam** is strongly **focused** onto a dielectric-**metal** interface, the entire **beam** is p-polarized with respect to the dielectric-metal interface, enabling excitation of **surface plasmons** from all directions. The angular selectivity of **surface plasmon** excitation mimics the function of an axicon, leading to an evanescent nondiffracting Bessel beam. The created evanescent Bessel beam may be used as a virtual probe for near-field optical imaging and sensing applications. (9 Refs)
Subfile: A
Descriptors: laser beams; light diffraction; light polarisation; near-field scanning **optical microscopy**; optical focusing; optical sensors; photoexcitation; **surface plasmon** resonance
Identifiers: Bessel beam generation; **surface plasmon** resonance; **surface plasmon** excitation; radially polarized beam; optical focusing; dielectric-metal interface; p-polarized beam; angular selectivity; axicon; evanescent Bessel beam; nondiffracting Bessel beam; virtual probe; near-field optical imaging; sensing applications
Class Codes: A4225J (Optical polarization); A4225F (Optical diffraction and scattering); **A7320M** (Collective excitations (surface states)); A0779 (Scanning probe microscopy and related techniques); **A0760P** (Optical microscopy); A0670D (Sensing and detecting devices)
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DIALOG(R) File 2:INSPEC
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08763647 INSPEC Abstract Number: A2003-23-7320M-003
Title: Role of **surface plasmons** in the **optical** interaction in **metallic** gratings with **narrow** slits
Author(s): Zhijun Sun; Yun Suk Jung; Hong Koo Kim
Author Affiliation: Dept. of Electr. Eng., Univ. of Pittsburgh, PA, USA
Journal: Applied Physics Letters vol.83, no.15 p.3021-3
Publisher: AIP,
Publication Date: 13 Oct. 2003 Country of Publication: USA
CODEN: APPLAB ISSN: 0003-6951
SICI: 0003-6951(20031013)83:15L.3021:RSPO;1-X
Material Identity Number: A135-2003-047
U.S. Copyright Clearance Center Code: 01/03/6951/2003/83(15)/3021(3)/$20.00
Document Number: S0003-6951(03)01841-2
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: We report an experimental study of the transmission of **light** through **narrow** slits in **metallic** gratings (Ag layer thickness of 100-400 nm, grating period of 370 or 780 nm, and slit width of 30-100 nm). Peak transmission of ~60% is observed for TM polarization at a wavelength redshifted from the point of **surface plasmon** (SP) resonance at the metal/substrate interface. At the transmission minima, the angular dependence of reflection shows a sharp peak with minimum loss of optical power. Two types of **surface plasmon** excitation are found responsible for the observed transmission dips: (1) the SP resonance along the planes that comprise either the metal/air or metal/substrate interfaces and (2) the SP resonance localized along the surface that encloses each metal island separated by slits. (18 Refs)
Subfile: A
Descriptors: diffraction gratings; light polarisation; light transmission ; quartz; red shift; silver; **surface plasmon** resonance
Identifiers: **surface plasmons**; optical interaction; metallic gratings; **narrow** slits; light transmission; incidence angle effect; TM polarization; redshift; **surface plasmon** resonance; metal/substrate interface; 100 to 400 nm; 30 to 100 nm; 350 to 1750 nm; Ag-SiO/sub 2/
Class Codes: **A7320M** (Collective excitations (surface states)); A4280F (Gratings, echelles)
Chemical Indexing:
Ag-SiO2 int - SiO2 int - Ag int - O2 int - Si int - O int - SiO2 bin - O2 bin - Si bin - O bin - Ag el (Elements - 1,2,3)
Numerical Indexing: size 1.0E-07 to 4.0E-07 m; size 3.0E-08 to 1.0E-07 m; wavelength 3.5E-07 to 1.75E-06 m
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37/9/1 (Item 1 from file: 34)
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci
(c) The Thomson Corp. All rts. reserv.
11824533 Genuine Article#: 698QT Number of References: 19
Title: Surface plasmon polaritons on **narrow-ridged** short-pitch **metal gratings** in the conical mount
Author(s): Hooper IR (REPRINT) ; Sambles JR
Journal: JOURNAL OF THE OPTICAL SOCIETY OF AMERICA A-OPTICS IMAGE SCIENCE AND VISION, 2003, V20, N5 (MAY), P836-843
ISSN: 0740-3232 **Publication Date:** 20030500
Publisher: OPTICAL SOC AMER, 2010 MASSACHUSETTS AVE NW, WASHINGTON, DC
Language: English Document Type: ARTICLE
Abstract: Recent investigations into high-aspect-ratio short-pitch **metal grating** structures have shown that it is possible to excite surface plasmon polaritons (SPPs) even in the zero-order region of the spectrum. The predominant reason this is possible is that extremely large bandgaps occur in the SPP dispersion curves, which are caused by the large depths, and heights, of the structures. The form of the resultant dispersion curves has also been found to be highly **dependent on the shape of the grating profile**. We present an extension to a previously published paper that described the nature of the SPPs excited on **narrow-ridged** short-pitch **metal gratings** in the classical mount by considering the case in which the radiation is incident at nonzero azimuthal angles (the conical mount). In particular we consider the case of 90degrees and 45degrees azimuthal angles and discuss the coupling to the SPP modes and the way in which polarization conversion is evident on such structures. (C) 2003 Optical Society of America.
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Abstract: The reflectivity of short pitch **metal gratings** consisting of a series of narrow Gaussian **ridges** in the classical mount has been modeled as a function of frequency and in-plane wave vector (the plane of incidence containing the **grating** vector) for various **ridge** heights. Surface plasmon polaritons (SPP's) are found to be excited even in the zero-order region of the spectrum. These may result in strong absorption of radiation polarized with its electric field in the plane of incidence (transverse magnetic). For zero in-plane wave vector the SPP modes consist of a symmetric charge distribution on either side of the **grating ridges**, a family of these modes existing with different numbers of field maxima per **grating** period. Because of the charge symmetry these modes may only be coupled to at angles away from normal incidence where strong resonant absorption may then occur. The dispersion of these SPP modes as a function of the in-plane wave vector is found to be complex arising from the formation of very large band gaps due to the harmonic content of the **grating** profile, the creation of a pseudo high-energy mode, and through strong interactions between different SPP bands.
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